



## **Bryston BDP-1 (Bryston Digital Player)**

### **PREAMBLE:**

We are entering a new age for music enjoyment. We have an ability to reproduce recorded music with more accuracy and faithfulness than ever before. This has been enabled by the recent developments on recording and distributing music in 'high resolution' computer readable formats. Until recently any new format required an extensive infrastructure to get launched and need the cooperation of a complete chain of contributors and well as major investments to get underway. But with the continually increasing power of the personal computer and media like the internet and recordable DVD's it is now possible to distribute the highest resolution audio to anyone with the desire to play it.

However this has also led to a proliferation of different ways of "consuming" this new content. The pioneers started by building and re-purposing the Digital Audio Workstations that were originally developed to edit the new high resolution files. Those have proven very clumsy for simply playing some music. They also typically compromise the potential audio performance with many additional and redundant features that contribute little to quality playback of audio. There have been several programs written that enable standard PC's to become very complex Jukeboxes with endless play lists and user interfaces that resemble computer spreadsheets. These have been mated to premium professional sound cards to make decent playback systems, but they are complex with many components to master and lots of details to confront before actually playing music. Others have taken the fundamental ability of a computer to do almost anything and have built dedicated systems that can do all of the identified tasks of playing digital audio, including ripping content, managing storage, clever user interfaces in the same box that is struggling to play the audio files faithfully.

Many digital playback systems incorporate an 'all in one' approach to digital playback where the computer has the operating system (Windows or Mac), the video interface, the CD ripper/player, the mother board, the soundcard and the DAC's contained in one chassis. (Think of this approach more as an audio 'receiver' rather than the more performance oriented approach of independent tuner, preamplifier and power amplifier in order to optimize performance in each specific area. This receiver approach is fine for what it is as it allows for a very easy solution for someone who is looking for ease of use. The problem is the performance suffers due to issues of noise and distortion created by this all in one approach. The computer is a great tool for searching and downloading content, but it becomes a cumbersome tool for playback of quality content. The Bryston BDP-1 Digital Player is much easier to use in practice than a typical multipurpose desktop interface.

## BRYSTON BDP-1:

We addressed this process differently. We broke the different tasks apart and dedicated our efforts on the stages that we can bring the most value and performance to. We also felt (in the tradition of component audio) that a dedicated one-function device can do a task much better than the “Swiss Army Knife” personal computer approach ...example BDA-1 DAC. All in one music servers have serious issues with noise and distortion so our approach is to **totally separate the 'digital processing' side of the procedure (playing music files) from the 'data management' (storage, handling, ripping etc.) side of the equation.** The Bryston BDP-1 Digital Players single function is to play high-resolution digital music files without compromise using a USB drive. The BDP-1 does not contain a hard-drive (no moving parts) or streamer or CD player or ripper, or noisy fans and switching power supplies



### BRYSTON BDP-1 Digital Music Player

To do this most efficiently, we use a Linux operating system optimized in ways only possible in Linux to provide the highest quality audio performance. Its motherboard is of industrial quality that uses only a small amount of its computing power. The soundcard is one of the finest available and the AES-EBU Balanced and BNC (spdif) output section provides for the highest possible performance when connected to the AES-EBU, BNC or COAX input on the Bryston BDA-1 external DAC. We also incorporate electronic isolation of audio components from computer components and use galvanic isolation to isolate and avoid charge-carrying particles moving from one section to another.

The Bryston BDP-1 Player focuses 'only' on playing high resolution files and will support 16 bit and 24 bit files with the following sample rates: 44.1KHz, 48KHz, 88.2KHz, 96KHz, 176.4KHz & 192KHz. It accesses these digital files from a USB device – either thumb-drive or hard-drive (the CD of the 21'st century).



**USB Thumb-Drive**



**1TB**

**USB2.0**

**USB Hard-Drive**

The BDP-1 Digital Player allows for all resolutions from 44.1 to 192/24bit files to be played back with superb performance. It reproduces the digital content in its native sample rate and bit depth and outputs the data stream to the Bryston BDA-1 external DAC through a high performance dedicated AES-EBU balanced XLR output or BNC/COAX (SPDIF) connector. It processes digital music files at a performance level unattainable with other approaches.



**BRYSTON BDA-1 Matching DAC – The Perfect Combo!**

### **BDP-1 Can Be Operated In One Of Two Ways:**

**Home Network (propeller-head option):** The BDP-1 is a technically sophisticated component incorporating state of the art solid-state electronics which links up to your home network and may be controlled by a variety of graphic interface devices (eg, laptop, Netbook, PC, PDA, iPhone, web-browser etc.). The BDP-1's graphic interface operates under "open source" software protocols, ensuring long term future proofing and compatibility with the widest possible range of other digital devices as they are developed. We will also be developing our own 'Bryston' web based MPD client. The main point to understand here is the BDP-1 is 'accessing' the digital files from the attached USB drives(s) directly and not streaming files on the network. The network is only used to interface your library storage on your remote (itouch, laptop,

notebook etc.) or using a web browser on your computer as the interface. This approach eliminates all the issues inherent in streaming high-resolution digital files over the home network or the dreaded 'sharing the home network' with the rest of the family.

Moving forward we are going to look at the possibility of integrating a NAS (network attached storage) drive to the BDP-1 so the network would 'find' the NAS drive instantly on the network when connected.

**Locally: (luddite option)** - The BDP-1 can also be operated "outside" the home network by simply utilizing the front panel buttons and the front panel two line graphic display. You can also access the basic functions of the player using the Bryston BR-2 remote (Play, Pause, Stop, Next and Previous). So with the BDP-1 you 'DO NOT' have to be on the network to play your songs. You can do some simple navigation of the USB drive(s) using the two line graphic display and front panel controls. You can open folders and choose songs to play. At this point you know it all works and you can then deal with setting up your network interface as time and talent permits.

### **ON THE INSIDE:**

Internally the Bryston BDP-1 music player employs a fan-less motherboard with an integrated processor and flash drive memory. It runs an extremely pared down embedded version of the "Linux" operating system (as opposed to Windows or Mac OS). It boots in read-only mode so you cannot accidentally or purposely cause a system failure. It employs a very high quality modified digital soundcard capable of native resolutions all the way up to 192/24. The output section is a specially designed interface to allow state of the art digital connections between the BDP-1 Player and the Bryston BDA-1 external DAC utilizing either AES-EBU or BNC connectors.

The Bryston BDP-1 Digital Music Player uses any direct coupled USB (thumb drive or hard-drive) 'storage source' and can play all high resolution AIFF, FLAC and WAV files up to and including native 192/24 bit files. Music must be ripped using a different computer running any operating system and any ripping program the end user is comfortable with. Playback can be controlled via numerous methods. A popular option will be the iPod Touch or iPhone, a web browser or the front panel controls on the BDA-1 digital player or basic functions using the Bryston BR-2 remote.

### **PLAYING MUSIC FILES:**

In conclusion, the easiest way to understand the Bryston BDP-1 Digital Music Player is to think of it as an 21<sup>st</sup> century updated CD player. Instead of CD's as the music source though it utilizes USB thumb drives or USB hard-drives as the music storage source. For example you can use a large 500GB to 1TB USB hard-drive which is permanently connected to the BDP-1 for mass storage of your music and then use a number of smaller 8-16GB USB thumb-drives to create specific play lists – one for Jazz, one for Classical, one for Rock etc. and insert them into the BDP-1 as you wish. Also your friends can come over with their favorite songs loaded on their personal thumb-drives and listen as well.

The Bryston BDP-1 is designed to interface between your 'music library' and a high quality external DAC (preferably the Bryston BDA-1). The "component" chain works out as follows:

- **The Bryston BDP-1 Player accesses the digital files from a USB thumb drive or USB hard-drive**
- **The USB device streams the stored digital music content in its native sample rate and bit depth into the BDP-1 Digital Player**
- **The BDP-1 processes these music files at a state of the art level from 44.1/16bit all the way up to 192K24/bit**
- **The BDP-1 outputs the data stream to the Bryston BDA-1 external DAC through a high performance dedicated digital AES-EBU XLR Balanced connector or BNC/COAX (SPDIF) output.**

The home network is only utilized to allow you to view, manage and control your playlist using a variety of graphic interface devices (eg, laptop, Netbook, PC, PDA, iPhone etc.). The other interface option is utilizing the front panel controls and 2-line graphic display on the Bryston BDP-1 digital player. You do not have to be connected to the home network in order to use the front panel controls. The BDP-1's graphic interface operates under "open source" software protocols, ensuring long term future proofing and compatibility with the widest possible range of other digital devices as they are developed.

Playing high-resolution digital files (96/24, 176/24 to 192/24) without issues (dropouts, hiccups etc) is not as simple as it sounds. The CPU, soundcard and digital interface and output stage to the external DAC are critical in extracting as much quality and performance as possible. The Bryston DAC continues this focus on function specific design, again concentrating on doing the specific task well. This Bryston combination of BDA-1 External DAC and BDP-1 Digital Player will provide you with a state of the art high-resolution music playback system.